



PATENT

Docket No.: 18001/5062 (RPI-806)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Belfort et al.

Serial No. : 10/812,792

Cnfrm. No. : 4213

Filed : March 30, 2004

For : MICROFILTRATION AND/OR
ULTRAFILTRATION PROCESS FOR
RECOVERY OF TARGET MOLECULES
FROM POLYDISPERSE LIQUIDS

Examiner:
To Be Assigned

Art Unit:
1645

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.97-1.98

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Respectfully submitted,

Date: March 10, 2005


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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	10/812,792
				Filing Date	March 30, 2004
				First Named Inventor	Belfort et al.
				Art Unit	1645
				Examiner Name	To Be Assigned
Sheet	1	of	5	Attorney Docket Number	18001/5062 (RPI-806)

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
	1	US-5,256,294	10/26/1993	van Reis	
	2	US-5,490,937	02/13/1996	van Reis	
	3	US-5,597,486	01/28/1997	Lutz	
	4	US-5,756,687	05/26/1998	Denman et al.	
	5	US-6,054,051	04/25/2000	van Reis	
	6	US-6,183,803	02/06/2001	Morcol et al.	
	7	US-6,221,249	04/24/2001	van Reis	
	8	US-6,268,487	07/31/2001	Kutzko et al.	
	9	US-6,387,270	05/14/2002	van Reis	
	10	US-6,555,006	04/29/2003	van Reis	
	11	US-RE37,759	06/25/2002	Belfort	
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FOREIGN PATENT DOCUMENTS						
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		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
	12	WO 2004/016334	02/26/2004	Rensselaer Polytechnic Institute		

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	13	Al-Akoum et al., "Comparison of Three Different Systems Used for Flux Enhancement: Application to Crossflow Filtration of Yeast Suspensions," <i>Desalination</i> 147:31-36 (2002)	
	14	Bacchin et al., "A Unifying Model for Concentration Polarization, Gel-Layer Formation and Particle Deposition in Cross-Flow Membrane Filtration of Colloidal Suspensions," <i>Chem. Eng. Sci.</i> 57:77-91 (2002)	
	15	Baker et al., "Factors Affecting Flux in Crossflow Filtration," <i>Desalination</i> 53:81-93 (1985)	
	16	Baruah et al., "A Predictive Aggregate Transport Model for Microfiltration of Combined Macromolecular Solutions and Poly-Disperse Suspensions: Model Development," <i>Biotechnol. Progress</i> , 19:1524-32 (2003)	
	17	Baruah et al., "A Predictive Aggregate Transport Model for Microfiltration of Combined Macromolecular Solutions and Poly-Disperse Suspensions: Testing Model with Transgenic Goat Milk," <i>Biotechnol. Prog.</i> 19:1533-1540 (2003)	
	18	Baruah et al., "Optimized Recovery of Monoclonal Antibodies from Transgenic Goat Milk by Microfiltration," <i>Biotechnol. & Bioeng.</i> 87:274-285 (2004)	
	19	Belfort et al., "The Behavior of Suspensions and Macromolecular Solutions in Crossflow Microfiltration," <i>J. Membr. Sci.</i> 96:1-58 (1994)	
	20	Burns et al., "Contributions to Electrostatic Interactions on Protein Transport in Membrane Systems," <i>AIChE J.</i> 47:1101-14 (2001)	
	21	Burns et al., "Effect of Solution pH on Protein Transport through Ultrafiltration Membranes," <i>Biotech. & Bioeng.</i> 64:27-37 (1999)	
	22	Cheang et al., "Separation of α -Lactalbumin and β -Lactoglobulin Using Membrane Ultrafiltration," <i>Biotech. & Bioeng.</i> 83:201-209 (2003)	
	23	Ehsani et al., "Fractionation of Natural and Model Egg-White Protein Solutions with Modified and Unmodified Polysulfone UF Membranes," <i>J. Membr. Sci.</i> 123:105-119 (1997)	

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	24	Gekas et al., "Diffusive Flows in Ultrafiltration and Their Effect on Membrane Retention Properties," <i>J. Membr. Sci.</i> 80:73-83 (1993)	
	25	Gesan-Guiziu et al., "Critical Stability Conditions in Crossflow Microfiltration of Skimmed Milk: Transition to Irreversible Deposition," <i>J. Membr. Sci.</i> 158:211-222 (1999)	
	26	Gesan-Guiziu et al., "Process Steps for the Preparation of Purified Fractions of α -Lactalbumin and β -Lactoglobulin from Whey Protein Concentrates," <i>J. Dairy Res.</i> 66:225-236 (1999)	
	27	Ghosh et al., "Fractionation of Biological Macromolecules Using Carrier Phase Ultrafiltration," <i>Biotech. & Bioeng.</i> 74:1-11 (2001)	
	28	Ghosh et al., "Parameter Scanning Ultrafiltration," <i>Biotech. & Bioeng.</i> 81:673-682 (2003)	
	29	Goff et al., "Dairy Chemistry and Physics," In: Hui YH, editor, <i>Dairy Science and Technology Handbook</i> , Vol. 1, Principles and Properties. New York: VCH. p 1-81 (1993)	
	30	Le Berre et al., "Microfiltration (0.1 μ m) of Milk: Effect of Protein Size and Charge," <i>J. Dairy Res.</i> 65:443-455 (1998)	
	31	Lentsch et al., "Enhanced Separation of Albumin-poly (ethylene glycol) by Combination of Ultrafiltration and Electrophoresis," <i>J. Membr. Sci.</i> 80:221-232 (1993)	
	32	Lucas et al., "Extraction of α -Lactalbumin from Whey Protein Concentrate with Modified Inorganic Membranes," <i>J. Membr. Sci.</i> 148:1-12 (1998)	
	33	Meade et al., "Expression of Recombinant Proteins in the Milk of Transgenic Animals," In: Fernandez J., Hoeffler J., editors. <i>Gene Expression Systems: Using Nature for the Art of Expression</i> . Carlsbad: Academic Press. p 399-427 (1998)	
	34	Millesime et al., "Protein Retention with Modified and Unmodified Inorganic Ultrafiltration Membranes: Model of Ionic Strength Controlled Retention," <i>J. Membr. Sci.</i> 108:143-159 (1995)	
	35	Mochizuki et al., "Sieving Characteristics of Albumin Deposits Formed During Microfiltration," <i>J. of Coll. And Interface Sci.</i> 158:136-145 (1993)	

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	36	Morcol et al., "Model Process for Removal of Caseins from Milk of Transgenic Animals," <i>Biotechnol. Prog.</i> 17:577-582 (2001)	
	37	Muller et al., "Ultrafiltration Modes of Operation for the Separation of α -Lactalbumin from Acid Casein Whey," <i>J. Membr. Sci.</i> 153:9-21 (1999)	
	38	Ng et al., "Optimization of Solute Separation by Diafiltration," <i>Sep. Sci.</i> II(5):499-502 (1976)	
	39	Nystrom et al., "Fractionation of Model Proteins Using Their Physicochemical Properties," <i>Coll. And Surfaces</i> 138:185-205 (1998)	
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	41	Rabiller-Baudry et al., "Application of a Convection-Diffusion-Electrophoretic Migration Model to Ultrafiltration of Lysozyme at Different pH Values and Ionic Strengths," <i>J. Membr. Sci.</i> 179:163-174 (2000)	
	42	Raymond et al., "Protein Fractionation Using Electrostatic Interactions in Membrane Filtration," <i>Biotech. & Bioeng.</i> 48:406-414 (1995)	
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	44	Smith et al., "Electrostatic effects on the Partitioning of Spherical Colloids Between Dilute Bulk Solution and Cylindrical Pores," <i>J. Coll. Interface Sci.</i> 91:571-590 (1983)	
	45	Tetra Pak Processing Systems, AB, S-221 86, <i>Dairy Processing Handbook</i> , Lund Sweden: Verlag. (1995) [Table of Contents and Index only]	
	46	van Reis et al., "Constant C _{wall} Ultrafiltration Process Control," <i>J. Membr. Sci.</i> 130:123-140 (1997)	
	47	van Reis et al., "High Performance Tangential Flow Filtration," <i>Biotech. & Bioeng.</i> 56:71-82 (1997)	

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	48	van Reis et al., "High-Performance Tangential Flow Filtration Using Charged Membranes," <i>J. Membr. Sci.</i> 159:133-142 (1999)	
	49	van Reis et al., "Optimization Diagram for Membrane Separations," <i>J. Membr. Sci.</i> 129:19-29 (1997)	
	50	Zeman et al., <i>Microfiltration and Ultrafiltration Principles and Applications</i> . Marcel Dekker, Inc., New York, (1996)	
	51	Zeman et al., "Polymer Solute Rejection by Ultrafiltration Membranes," <i>Synthetic Membranes vol. II. Hyperfiltration and Ultrafiltration Uses</i> (A. F. Turbak, ed.), ACS Symposium Series No. 54, American Chemical Society, Washington, D.C., p. 412 (1981)	
	52	Zydney et al., "Protein Transport Through Porous Membranes: Effect of Colloidal Interactions," <i>Coll. Surf. A.</i> 138:133-143 (1998)	

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